

REMARKS

This application has been reviewed in light of the Office Action dated August 7, 2003. Claims 1-58 are now presented for examination. Claims 47-57 have been amended to define more clearly what Applicant regards as his invention. Claim 58 has been added to provide Applicant with a more complete scope of protection. Claims 1, 22, 44, 45, 46, 47, 53 and 58 are in independent form. Favorable reconsideration is requested.

The Examiner is thanked for the indication in the Office Action that Claims 1-46 are allowed.

Claims 48, 50/48, 51/48, 52/51/48, 50/49, 51/49, 52/51/49, 50/47, 51/47, 52/51/47, 55/54, 56/54, 57/56/54, 55/53, 56/53 and 57/56/53 were objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including the limitations of the base claim and any intervening claims. Those claims have not been so rewritten at this time, since, for the reasons given below, the base claim from which they depend is believed patentable.

Claims 47, 49, 53 and 54 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,903,108 (*Mougin et al.*). Claims 53 and 54 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,945,969 (*Westphal*).

As amended, independent Claim 47 is directed to an image-forming apparatus comprising (A) a first substrate, (B) a second substrate arranged in an opposing and spaced relation to the first substrate, (C) a support frame arranged between the first and second substrates to surround a space defined between a principal surface of the first substrate and a principal surface of the second substrate for holding the space in a depressurized condition, (D) a plurality of electron-emitting devices arrayed on the principal surface of the first substrate facing the space, and (E) an image-forming member. The image-forming member includes phosphors and a first conductive film disposed on the phosphors, arranged on the principal surface of the second substrate facing the space. The apparatus also comprises (F) spacers disposed in the space for holding a spacing between

the first and second substrates, and (G) a second conductive film arranged on the principal surface of the second substrate facing the space, surrounding the first conductive film and spaced from the first conductive film. The second conductive film is in the form of a closed loop, and the first and second conductive films are not overlapped with each other. The support frame surrounds the second conductive film and is spaced from the second conductive film, and the second conductive film is supplied with a potential lower than that applied to the first conductive film.

Independent Claim 53, as amended, is directed to a substrate structure, having an image-forming member to be used for an image forming apparatus including an image-forming member which is to be supplied a voltage not lower than 5kV. The substrate structure comprises (A) a substrate having a principal surface, (B) an image-forming member having an outer periphery, including phosphors disposed on the principal surface of the substrate and a first conductive film disposed on the phosphors, arranged on the principal surface of the substrate, and (C) a second conductive film arranged on the principal surface of the substrate, surrounding the first conductive film and spaced from the first conductive film. The second conductive film is in the form of a closed loop, and the first and second conductive films are not overlapped with each other.

The amendments to Claims 47 and 53 clarify that, according to an aspect of this invention, a first conductive film and a second conductive film do not overlap each other.

For example, as shown in Fig. 1, there is no portion where a first conductive film 12 which is an anode electrode to which a high voltage is applied and a second conductive film 5 surrounding the first conductive film 12 (and to which a low potential is applied) overlap each other.

Further, according to an aspect of the invention to which Claim 47 relates, as shown in, *inter alia*, Fig. 1, the second conductive film 5 surrounding the first conductive film 12 is disposed inside (the vacuum side) of a support frame 4 and is spaced

from the support frame 4. This feature is for suppressing a discharge phenomenon caused by a conductive film (the first conductive film) to which a very high anode potential is applied directly facing a member such as the support frame 4 outside of an image display area in a vacuum vessel.

By virtue of the features of Claim 47, electric field intensity which is applied to the member outside the image display area such as the support frame 4 is reduced by disposing the second conductive film to which a low potential is applied between an anode electrode (the first conductive film) and the member outside the image display area such as the support frame 4. As a result, it is possible to suppress the discharge phenomenon caused between the conductive film to which the very high anode potential is applied (the first conductive film) and the member outside the image display area such as the support frame 4.

Added independent Claim 58 recites, *inter alia*, that a voltage source applies a voltage to a first conductive film to which the voltage source is connected, and the first conductive film is inside of a closed loop of a second conductive film.

On the other hand, in the image display apparatus of *Mougin*, as shown in Figs. 3 and 4, a potential almost equivalent to that to be applied to an anode electrode (active area) 20 is applied to a lead wire (track for biasing active area) 24. However, in the image display apparatus of *Mougin*, the lead wire 24 goes under the track 21. (See, e.g., column 5, lines 42-52). This results in a form that the track 24 to which a high potential is applied and the member outside the image display area (for instance, a joint 14 in Fig. 2) directly face each other. Therefore, even if *Mougin* be deemed to be able to prevent secondary emission from occurring, it is seen to be essentially impossible to suppress discharge between a member with a high potential outside the image display area and a member outside the image display area such as the support frame. Indeed, nothing has been found, or pointed out, in *Mougin* that would teach or suggest an image-forming apparatus having the above-described features recited in Claims 47, 53 and 58.

For the foregoing reasons, Claims 47, 53 and 58 are each deemed clearly patentable over *Mougin*.

Westphal teaches at col. 2, lines 17-23, that an anode 14 includes a transparent substrate 24, a transparent conductive layer 25 over the substrate 24, and a black matrix grille (not shown) formed over conductive layer 25 to define pixel regions. A phosphor coating 26 is deposited on these defined pixel regions. According to *Westphal*, the substrate 24 is preferably soda-lime glass, layer 25 is preferably indium tin oxide (ITO), and the black matrix is preferably cobalt oxide. Therefore, in the *Westphal* structure, there is a vertical relationship between the conductive film and the phosphor, but that reference is not seen to teach or suggest a structure having components that are related as set forth in Claim 53.

Presumably, because the potential to be applied to an anode is low in such a display as disclosed in *Westphal* at col. 2, lines 32-35, "Exemplary DC voltages are as follows: layers 17 are grounded; grid 22 is at about 40-100 volts; and layer 25 in the anode is at about 1000 volts", it has the form of disposing phosphor on a conductive film.

In a substrate structure according to an aspect of the invention to which Claim 53 relates, on the other hand, a high voltage not lower than 5kV is applied to the image-forming member (see, e.g., page 25, lines 17-22 of the specification). Performance of a display can be deteriorated by disposing a phosphor, which is essentially an insulator, on a side opposite to an electron-emitter in a display to which such a high anode voltage is applied.

It is respectfully submitted that nothing in *Westphal* would teach or suggest a substrate structure, having an image-forming member to be used for an image forming apparatus including an image-forming member which is to be supplied a voltage not lower than 5kV, comprising a first conductive film disposed on phosphors, as recited in Claim 53. Accordingly, Claim 53 is believed to be clearly patentable over *Westphal*.

With regard to added Claim 58, that claim recites that a voltage source is connected to the first conductive film at a portion which is spaced from the second conductive film and is inside of the closed loop of the second conductive film. It is respectfully submitted that *Westphal* is not seen to teach or suggest these features of Claim 58. Accordingly, Claim 58 is also believed clearly patentable over that reference.

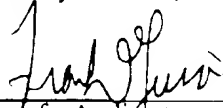
The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable over the references relied on by the Examiner for the same reasons as are those independent claims. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

Applicant also notes that the Office Action has been marked "final", despite the fact that Claims 47-57 have been treated on the merits only once in this application, namely, in the present Office Action. Since only second or subsequent actions of the merits may be made final, and Claims 47-57 have been treated on the merits only once in this application, it is believed that the "final" status of the Office Action is improper and should be withdrawn. MPEP 706.07. Reconsideration and withdrawal of that status are respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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